REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.114 and in light of the remarks which follow, are respectfully requested.

By the above amendments, claim 1 has been amended for readability purposes by replacing the word "the" before the first occurrence of the word "reaction gas mixture" with "a". Claim 1 has also been amended for clarification purposes to recite the phrase "or medium capable of releasing oxygen" after "the oxygenated medium". Claim 1 has further been amended for clarification purposes to recite alternately feeding a reactor containing the porous medium with the reaction gas mixture by the introduction modes (i) and (ii), wherein the introduction modes (i) and (ii) alternate as a function of the advance of a combustion front inside the reactor. Support for such amendment can be found in the specification at least at page 10, lines 2-14.

Claims 4 and 10 (which indirectly depend from claim 1) have been amended for readability purposes by deleting subject matter which has been incorporated into claim 1. New independent claim 20 is directed to an additional aspect of the present invention, and recites subject matter recited in claims 1 and 19. New claim 21 depends from claim 20, and is supported by the specification at least at page 10, lines 2-14. Entry of the above amendments is proper at least because a Request for Continued Examination is being filed herewith. See 37 C.F.R. §1.114.

In the Official Action, claims 1-19 stand rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth at page 4 of the Official Action. Withdrawal of this rejection is respectfully requested for at least the following reasons.

The Patent Office has asserted that it is unclear whether claim 1 "embraces a situation in which the medium capable of releasing oxygen is introduced into the porous medium along with the hydrocarbon". In response thereto, claim 1 has been amended to clarify that the reaction gas mixture comprising the hydrocarbon and the oxygenated medium or medium capable of releasing oxygen, is introduced into a porous medium.

For at least the above reasons, claims 1-19 comply with the provisions of the second paragraph of 35 U.S.C. §112. Accordingly, withdrawal of the above rejection is respectfully requested.

In the Official Action, claim 18 stands rejected under 35 U.S.C. §112, first paragraph, for the reasons set forth at page 4 of the Official Action. Withdrawal of this rejection is respectfully requested for at least the following reasons.

The Patent Office has asserted that there is no descriptive support for carrying out the process on a continuous basis, or for the porous medium not being heated by an external heat supply, as recited in claim 18. However, the specification at page 8, lines 23 and 24 states that passing the reaction mixture through a porous medium which has been preheated beforehand in accordance with one aspect of the present invention, for example, can render unnecessary an external heat supply when operating continuously. Thus, it is clear that the specification contains adequate support for claim 18. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1-4, 6, 10, 13, 14, 18 and 19 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,488,838 (*Tonkovich et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Tonkovich et al does not disclose or suggest each feature of one aspect of the present invention as defined by amended claim 1. For example, *Tonkovich et al* does not disclose or suggest alternately feeding a reactor containing the porous medium with the reaction gas mixture by the following introduction modes (i) and (ii): (i) the reaction gas mixture is introduced to a lower part of the reactor and the mixture comprising the hydrogen and the CO is collected at an upper part of the reactor, or (ii) the reaction gas mixture is introduced to the upper part of the reactor and the mixture comprising the hydrogen and the CO is collected at the lower part of the reactor, wherein the introduction modes (i) and (ii) alternate as a function of the advance of a combustion front inside the reactor.

By comparison, *Tonkovich et al* merely discloses that a reactant enters a reactor microchannel in a bulk flow path, flowing past and in contact with a porous material (col. 3, lines 45-47). *Tonkovich et al* provides no motivation or suggestion for alternately feeding a reactor by the claimed introduction modes (i) and (ii), let alone that such introduction modes (i) and (ii) alternate as a function of the advance of a combustion front inside the reactor.

For at least the above reasons, it is apparent that claim 1 is not obvious over *Tonkovich et al*. Accordingly, withdrawal of the above §103(a) rejection is respectfully requested.

Tonkovich et al also fails to disclose or suggest each feature of another aspect of the present invention as defined by newly added claim 20. For example, *Tonkovich et al* does not disclose or suggest that a flow of a reaction gas mixture is introduced into a reactor containing a porous medium, wherein the entire flow of the reaction gas mixture is introduced into the porous medium, as recited in claim 20.

In stark contrast, *Tonkovich et al* discloses that a "significant advantage" of its process is the reduced pressure drop obtained by the reactant flow passing and contacting the porous structure, but not being required to flow through the porous structure (col. 2, lines 51-54). In light of this disclosure, it is clear that one of ordinary skill in the art would not have been motivated to modify *Tonkovich et al* by introducing the entire flow of a reaction gas mixture into a porous medium, as recited in claim 20.

Thus, for at least the above reasons, it is submitted that claim 20 is neither anticipated by nor obvious over *Tonkovich et al*.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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